

Best Practice 1

TITLE: 4TH GENERATION DA VINCI ROBOT FOR ROBOTIC SURGERY

1. Objective

Robotic surgery is a minimally invasive surgery that has dramatically changed the experience of surgery for patients. At DPU the fourth generation, da Vinci surgical system is in use that has enhanced cameras for 3D visualization and surgeon-controlled robotic arms for precise movements. It allows surgeons to operate on tissues and organs as in open surgery, but through a few small incisions. Robotic surgery facility at DPU provides exposure to postgraduate students in latest surgical technologies. Availability of such advanced technologies has enabled the patients of India to reduce travelling expenditure and hospitalization cost by going abroad.

2. Context

India's first robotic-assisted surgical procedure took place at Delhi in 2002. Dr. Tejas Patel, A cardiac surgeon, with the help of advanced robotics, conducted the world's first telerobotic surgery on a middle-aged woman with blocked artery while sitting 32 kilometres away from the patient. This was the world's first heart surgery from a remote location which was done in India in the year 2018. Currently 500 robotic surgeons have started practicing this type of surgery at government and private healthcare facilities in India. Benefits of this procedure enables shorter post-surgery recovery period, relatively less pain and less blood

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loss in robotic assisted surgeries. Hence robotic surgery is preferred over open and laparoscopic surgeries. As a result of this robotic surgeries allows the surgeons to perform complex as well as routine procedures through small incisions like traditional laparoscopy.

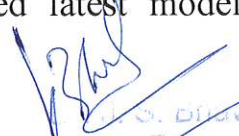
At Dr. D. Y. Patil Vidyapeeth Medical College, Hospital & Research Centre, has always been at the forefront in advancement in medical technology. At the Centre of excellence for Robotic Surgery, we are changing the way surgeons treat patients. DPU believes in providing exemplary healthcare that translates into better healing, lesser pain, smaller incisions, and reduced hospitalization. The number of procedures performed in any facility is an indicator of expertise and level of quality, which speaks volumes about the institution. For over two decades, surgeons at DPU have led the way towards better healthcare with minimally invasive procedures. As a natural progression towards excellence, the Centre for Robotic Surgery has been established. The services are provided across multiple specialities which cohesively enhance patient outcome. Thus, DPU continues to be the leader in surgical care, offering an extensive panel of surgeons along with trained staff and nurses who are a part of the dedicated robotic surgical team. The Centre of Excellence for Robotic surgery at DPU offers a faster, less painful surgical option so that life can be led to the fullest.

3. **The Practice**

Dr. D. Y. Patil Medical College, Hospital & Research Centre, Pimpri, Pune conducted the first robotic surgery on 25th June 2018 in Pimpri Chinchwad Municipal Corporation area on a newly installed latest model of the 4th

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generation, da Vinci Robot, manufactured by Intuitive Technologies, CA, USA. A second console for training young surgeons is also provided in addition to the main console of the robotic surgeon. This machine is one of the 4th generation latest models of medical robot. DPU has one out of 3 such machines installed in the state of Maharashtra, only a few more are available all over India. At other places, 3rd generation models are in use. The cost of the machine purchased at DPU is about Rs.25 Crores.


Considering the example of conventional prostate surgery, patients stays in the hospital for 7 to 9 days post-operatively, but post-robotic surgery patient is fit for discharge by 5th day. There is gross reduction in the post-operative pain as evidenced by lower Visual Analogue Score (VAS scores) in patients who undergo robotic surgery. Also, the requirement of narcotic analgesics was significantly reduced. The average length of stay (ALOS) was 5 days and the patient returns to his daily activity much earlier thereby reducing loss of man hours and financial burden on the patients. As the surgery is undertaken via small 1 cm ports (4/5 no's) there is very little postoperative scarring as compared to conventional surgical incisions.


4. Evidence of success

Da Vinci Robot IV Generation with four arms and dual console is only one of its kind among all Medical Colleges in Maharashtra, installed in at DPU in 2018. Since then, there are 52 Robotic surgeries performed at our hospital. These include:

Attested Copy Radical Prostatectomy

➤ Radical Hysterectomy


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- Ca Bladder surgeries like cystectomy with ileal conduit.
- Robotic assisted tubal recanalization.
- Robotic cholecystectomy.
- Robotic radical nephrectomy.



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**Re-accredited by NAAC with a CGPA of 3.62 on a four point scale at 'A' Grade.
(An ISO 9001:2015 Certified University)**



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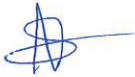
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5. Problems encountered and resources required

1. Robotic surgery is significantly costlier than conventional laparoscopic procedure/open surgery.
2. Insurance companies as of now do not finance robotic surgeries.
3. There is lack of patient awareness regarding advantages of robotic surgery.
4. Equipment of robotic surgery are expensive to the tune of 22 crores.
5. Comprehensive maintenance cost (CMC) is about 95 lakhs/year.
6. Consumables used in robotic surgery are also expensive.
7. Space requirement for surgical robot is much more and bigger operation theatres are required.
8. Training and expertise are required by the surgeon which is also expensive.

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